REMARKS

Claims 1-19 are pending.

Claims 10-11 and 16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject which applicant regards as the invention.

Claims 1, 6-7, 10-11, and 17-18 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No. 6,169,735 B1 of Allen, Jr. et al. ("Allen").

Claims 2, 8-9, and 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Allen in view of U.S. Patent No. 6,064,651 of Rogers, et al. ("Rogers").

Claims 3-5 and 14-16 would be allowable if rewritten to include all of the limitations of the base claim and any intervening claims.

Claim 19 is allowed.

Claims 10 and 16 have been amended to satisfy 35 U.S.C. 112, second paragraph.

35 U.S.C. § 112, Second Paragraph, Rejection

The Examiner has rejected claims 10-11 and 16 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner states:

> In claim 10 line 2 which recite "a plurality of IP packets" is not clear as to whether it is reciting – said plurality of IP packets – as in claim 1 lines 5-6. In claim 16 line 2 which recite "the corresponding circuit" lacks clear antecedent basis because no corresponding circuit have been previously recited in the claims and therefore the limitation is not clearly understood.
>
> Claim 11 is [are] rejected under 35 U.S.C. § 112, second paragraph because it depends from rejected claim 10.

(PP. 2-3 Office Action 04/19/2001).

Applicants respectfully submit that claims 10-11 and claim 16 as amended comply with 35 U.S.C. § 112, second paragraph.

In particular, claim 10 as amended includes "the plurality of IP packets" to recite "a plurality of IP packets" in claim 1. As such, claim 10 as amended complies with 35 U.S.C. § 112, second paragraph.

In addition, given that claim 11 depends from claim 10, applicants submit that claim 11 complies with 35 U.S.C. § 112, second paragraph.

Furthermore, claim 16 has been amended to comply with 35 U.S.C. § 112, second paragraph. In particular, claim 16 as amended includes "a corresponding circuit" to comply with 35 U.S.C. 112, second paragraph.

35 U.S.C. § 102(e) Rejection - Allen

The Examiner has rejected claims 1, 6-7, 10-11, and 17-18 as being anticipated by Allen. The Examiner states:

> Allen, Jr. et al. disclose all the subject matter now claimed. Note col. 6 lines 43-50 which recite the method for transporting voice data from an originating location to a destination whereby the transporting is enabled by emulating a circuit by employing a circuit emulation service CES wherein the voice data is converted to ATM cells utilizing ATM adaptation layer 1 AAL1 or ATM adaptation layer 2 AAL2 and col. 16 line 55 to col. 17 line 8 which recite that the invention also applies to Internet services providers whereby the Internet user typically accesses the Internet by connecting to the Internet service provider via a dial up modem; however, unlike a voice connection, a modem connection carries bursty data with Internet Protocol IP packets clearly anticipate the method including the step of configuring a circuit emulation service CES over an Internet protocol IP network and the step of transporting the IP packets from a local interworking function to a remote interworking function according to the CES as in claims 1, 17, and 18. Col. 10 line 64 to col. 11 line 5 which recite the AAL1 or AAL2 allow the choice of carrying voice trunks through an ATM network as constant bit rate traffic or variable bit rate traffic and that if voice is sent as constant bit rate traffic, then ATM Forum's structured DS1 nx64 Kbps circulation emulation service using AAL1 is employed and if voice is sent as real time variable bit rate traffic, then AAL2 as the ATM adaptation layer is employed, thus taking advantage of the many efficiency and performance enhancing features supported by AAL2 clearly anticipate the step of encapsulating data received at a constant bit rate at the local interworking function into IP packets configured according to the CES as in claims 1 and 18. Col. 6 lines 3-22 which recite the use of a centralized control and signaling interworking function CS-IWF device for performing call control functions and using AAL2 to support silence suppression and/or voice compression clearly anticipate exchanging CES control protocol information between the local and remote interworking function as in claim 6 and including the compression option as in claim 7. Col. 14 lines 19-40 which recite the step of buffering to accommodate cell delay variation introduced by the network and cell construction delay clearly anticipate the step of buffering IP packets for at least as long as the maximum delay variation as in claims 10-11.

Applicants respectfully submit that claim 1 is not anticipated by Allen. Claim 1 includes the following limitations:

> configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured from a local interworking function to a remote interworking function;
>
> encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES; and
>
> transporting the plurality of IP packets from the local interworking function to the remote interworking function according to the CES.

(Claim 1).

In contrast, Allen discloses an ATM-based distributed virtual tandem switching system including an ATM switching network, a trunk interworking function (TIWF) device, and a centralized control and signaling interworking function (CS-IWF). In particular, Allen discloses a method of employing a CES to transport voice, converting an origination trunk to ATM cells and transmitting the voice within the ATM cells (see col. 6, lines 43-50).

A distinction of claim 1 over Allen is a method of <u>encapsulating data into a plurality of IP packets</u> as recited in claim 1. By way of contrast, Allen discloses a method of <u>converting an origination trunk to ATM cells</u>.

Another distinction of claim 1 over Allen is a method of <u>transporting the IP packets</u> as recited in claim 1. By way of contrast, Allen discloses a method of <u>transmitting the voice within the ATM cells</u>.

The Examiner states that Allen anticipates claim 1 because Allen discloses a method of accessing the Internet via a dial up modem carrying bursty data with IP packets. Applicants, however, submit that Allen does not anticipate claim 1 when Allen applies to Internet service providers. Allen discloses a method of carrying Internet traffic as data traffic using ATM connections to make

more efficient use of network resources. Specifically, Allen discloses a method of converting bursty data with IP packets to ATM connections and carrying the ATM connections by ATM network (see col. 16, line 55 to col. 17, line 8). By way of contrast, claim 1 discloses a method of encapsulating data into IP packets and transporting the IP packets.

Therefore, in view of the above distinctions, Allen does not disclose each and every limitation of claim 1. As such, claim 1 is not anticipated by Allen.

Given that claims 6-7 and 10-11 depend directly or indirectly from claim 1, applicants submit that claims 6-7 and 10-11 are not anticipated by Allen.

Moreover, applicants submit that claim 17 is not anticipated by Allen under 35 U.S.C. § 102(e). Claim 17 includes the following limitations:

> a machine readable storage medium having stored thereon a plurality machine executable instructions; and
>
> said instructions, when executed, to implement a method comprising
>
> configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured from a local interworking function to a remote interworking function;
>
> encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES; and
>
> transporting the IP packets from the local interworking function to the remote interworking function according to the CES.

(Claim 17).

In contrast, Allen does not disclose a method of configuring a CES over an IP network, encapsulating data received at a constant bit rate into IP packets, or transporting the IP packets.

Furthermore, applicants submit that claim 18 is not anticipated by Allen under 35 U.S.C. § 102(e). Claim 18 includes the following limitations:

first circuitry to configure a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured from a local interworking function to a remote interworking function;

second circuitry to encapsulate data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES; and

third circuitry to transport the IP packets from the local interworking function to the remote interworking function according to the CES.

(Claim 18).

In contrast, Allen does not disclose an apparatus comprising a first circuitry to configure a CES over an IP network, a second circuitry to encapsulate data received at a constant bit rate into IP packets, or a third circuitry to transport the IP packets.

35 U.S.C. § 103(a) Rejection

The Examiner has rejected claims 2, 8-9, and 12-13 under 35 U.S.C. 103(a) as being unpatentable over Allen in view of U.S. Patent No. 6,064,651 of Rogers, et al. ("Rogers"). In particular, the Examiner states:

> Allen, Jr. et al. did not recite attaching a CES header comprising a version number to each IP packet as in claims 8-9, the circuit header comprising at least a circuit identification, a flag field, sequence number, octet padding values and a data field as in claims 12-13, and the maximum delay variation as in claim 2.
>
> Rogers, et al. teach that it is known to provide the step of traffic shaping for altering the traffic characteristics of a stream of cells on a VCC or a VPC to achieve a desired modification of those traffic characteristics, in order to achieve better network efficiency whilst meeting the QoS objectives or to ensure conformance at a subsequent interface whereby traffic shaping maintains cell sequence integrity on the connection as set forth at col. 3 lines 31-40 and FIG. 2 which shows the connection

> parameters written into the cell header in the field of digital and multiplex communications clearly anticipate the CES header comprising the version number to each IP packet, the circuit identification, the flag field, sequence number, octet padding values and data field as in claims 8-9 and 12-13. Col. 1 lines 48-57 which recite means for providing bounded packet delay variation (commonly referred to as cell delay variation) which clearly anticipates the maximum delay variation as in claim 2.
>
> It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide the CES header comprising the version number to each IP packet, the circuit identification, the flag field, sequence number, octet padding values and data field as taught by Rogers et al. to the system of Allen, Jr. et al. because Rogers et al. teach the desirable advantage of achieving better network efficiency whilst meeting the QoS objectives and ensure conformance at a subsequent interface and said better network efficiency being desirable to achieve efficient system operation in Allen, Jr. et al.

(pp. 6-7 Office Action 04/19/2001).

Applicants respectfully submit that Rogers does not cure the deficiencies of Allen with respect to claim 1.

Rogers discloses a method of traffic shaping for causing the time multiplexed packet flows at queuing points within such networks or network elements to conform to specified traffic descriptors. Rogers also teaches that it is known to provide the step of traffic shaping for altering the traffic characteristics of a stream of cells on a VCC or a VPC to achieve a desired modification of those traffic characteristics (see col. 3, lines 31-40).

A distinction of claim 1 over Rogers is a method of <u>configuring a CES over an IP network</u>, the CES being configured from a local IWF to a remote IWF, as recited in claim 1.

Another distinction of claim 1 over Rogers is a method of <u>encapsulating data into IP packets</u> as recited in claim 1.

Still another distinction of claim 1 over Rogers is a method of <u>transporting the IP packets</u> as recited in claim 1.

Therefore, Rogers does not disclose each and every limitation of claim 1.

It is also respectfully submitted that Allen does not suggest a combination with Rogers, and Rogers does not suggest a combination with Allen. It would be impermissible hindsight to combine Allen with Rogers based on applicants' own disclosure.

Furthermore, even if Allen and Rogers were combined, such a combination would lack a method of <u>encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets</u> configured according to the CES as recited in claim 1. By way of contrast, the combination of Allen and Rogers would disclose a method of <u>converting a stream of cells to ATM cells</u>.

Another distinction of claim 1 over the combination of Allen and Rogers is a method of <u>transporting the IP packets</u> from the local interworking function to the remote interworking function according to the CES as recited in claim 1. By way of contrast, the combination of Allen and Rogers would disclose a method of <u>transmitting the stream of cells within the ATM cells</u>.

Therefore, in view of the above distinction, neither Allen nor Rogers, individually or in combination, disclose each and every limitation of claim 1. As such, claim 1 is not rendered obvious by Allen in view of Rogers under 35 U.S.C. § 103(a).

Given that claims 2, 8-9, and 12-13 depend directly or indirectly from claim 1, applicants submit that claims 2, 8-9, and 12-13 are not obvious over Allen in view of Rogers.

Furthermore, given that claims 3-5 and 14-16 depend directly or indirectly from claim 1, applicants submit that claims 3-5 and 14-16 are allowable.

Therefore, favorable action is solicited.

It is respectfully submitted that in view of the amendments and arguments set forth herein, the applicable rejections and objections have been overcome. Accordingly, applicants request that claims 1-19 be found in condition for allowance.

If there are any additional charges, please charge them to Deposit Account No. 02-2666.

Respectfully submitted,

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VERSION OF AMENDED CLAIMS WITH MARKINGS TO SHOW CHANGES

1. (Unchanged) A method comprising:

configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured from a local interworking function to a remote interworking function;

encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES; and

transporting the IP packets from the local interworking function to the remote interworking function according to the CES.

2. (Unchanged) The method of claim 1 wherein the properties of the IP network comprise at least one of a maximum delay variation, a bit error rate, out-of-order IP packet delivery, and an unpredictable packet loss rate.

3. (Unchanged) The method of claim 1 wherein configuring the CES comprises establishing a tunnel to carry the plurality of IP packets between the local and remote interworking functions.

4. (Unchanged) The method of claim 3 wherein the tunnel comprises a layer 2 tunneling protocol (L2TP) tunnel and L2TP tunnel session within the L2TP tunnel.

5. (Unchanged) The method of claim 3 wherein the tunnel comprises a multi-protocol label switching (MPLS) tunnel.

6. (Unchanged) The method of claim 1 wherein configuring the CES comprises:

exchanging a plurality of CES control protocol (CESCP) information between the local interworking function and the remote interworking function.

7. (Unchanged) The method of claim 6 wherein the plurality CESCP information comprises at least one of a circuit identification and an internet protocol address for the local and remote interworking functions, alarm indication signal options, idle condition options, a clock option, a check sum option, a minimum and a maximum circuit size, a multiple circuits option, a maximum transition delay, a maximum delay variation, a compression option, and an encryption option.

8. (Unchanged) The method of claim 1 wherein encapsulating the data comprises attaching a CES header to each IP packet.

9. (Unchanged) The method of claim 8 wherein the CES header comprises a version number for compatibility between the local interworking function and the remote interworking function.

10. (First Time Amended) The method of claim 1 further comprising:

buffering [a] <u>the</u> plurality of IP packets received from the remote interworking function for at least as long as a maximum delay variation; and

outputting payloads of the plurality of received IP packets at the constant bit rate.

11. (Unchanged) The method of claim 10 wherein the maximum delay variation comprises delay due to out-of-order IP packet delivery.

12. (Unchanged) The method of claim 1 wherein each IP packet further comprises at least one circuit, each circuit comprising at least one circuit header.

13. (Unchanged) The method of claim 12 wherein the at least one circuit header comprises at least one of a circuit identification, a flag field, a sequence number, a first octet padding value, a last octet padding value, and a data field.

14. (Unchanged) The method of claim 13 wherein the flag field comprises at least one of a compression flag, an idle flag, an alarm indication signal flag, and a clocking information flag.

15. (Unchanged) The method of claim 14 wherein the clocking information flag comprises a synchronous residual time stamp (SRTS) value.

16. (First Time Amended) The method of claim 13 wherein the sequence number indicates a starting position of a first bit of data in [the] <u>a</u> corresponding circuit with respect to a reference point in a corresponding bit stream.

17. (Unchanged) An article of manufacture comprising:

a machine readable storage medium having stored thereon a plurality machine executable instructions; and

said instructions, when executed, to implement a method comprising

configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured from a local interworking function to a remote interworking function;

encapsulating data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES; and

transporting the IP packets from the local interworking function to the remote interworking function according to the CES.

18. (Unchanged) An apparatus comprising:

first circuitry to configure a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured from a local interworking function to a remote interworking function;

second circuitry to encapsulate data received at a constant bit rate at the local interworking function into a plurality of IP packets configured according to the CES; and

third circuitry to transport the IP packets from the local interworking function to the remote interworking function according to the CES.

19. (Unchanged) A method comprising:

configuring a circuit emulation service (CES) over an internet protocol (IP) network based on properties of the IP network, the CES being configured between a first interworking function to a second interworking function;

encapsulating data received at a constant bit rate at the first interworking function into a first plurality of IP packets configured according to the CES;

encapsulating data received at the constant bit rate at the second interworking function into a second plurality of IP packets configured according to the CES;

transporting the first plurality of IP packets from the first interworking function to the second interworking function according to the CES;

transporting the second plurality of IP packets from the second interworking function to the first interworking function according to the CES;

buffering the second plurality of IP packets at the first interworking function for at least as long as a maximum delay variation, said maximum delay variation comprising delay due to out-of-order IP packet delivery;

outputting payloads of the second plurality of IP packets at the constant bit rate;

buffering the first plurality of IP packets at the second interworking function for at least as long as the maximum delay variation; and

outputting payloads of the first plurality of IP packets at the constant bit rate.